

1. A lubricating oil composition comprising
a lubricating oil and
as a metal protectant, an additive selected from the group
consisting of
 - 5 (a) a shelf stable haze free liquid of an overbased
amorphous alkaline earth metal carbonate of a fatty acid and
(b) a powdered overbased amorphous alkaline earth metal
carbonate of a fatty acid isolated from said liquid, said liquid or powdered
additive prepared according to the process of
 - 10 (i) reacting an alkaline earth metal base and a fatty
acid with an equivalent ratio of metal base to fatty acid being greater
than 1:1 in the presence of liquid hydrocarbon,
(ii) carbonating the mixture to produce amorphous
alkaline earth metal carbonate,
 - 15 (iii) adding during carbonation a dispersion of
alkaline earth metal base, a liquid hydrocarbon and an aliphatic alcohol
having at least 8 carbon atoms in relative amounts at a controlled rate of
alkaline earth metal base addition to produce a stable haze free liquid
reaction product, and
 - 20 (iv) removing water from the reaction product to
obtain said liquid additive or powdered additive.

2. The lubricating oil composition of claim 1 wherein said liquid reaction product is filtered to produce a thermodynamically stable liquid at a product filtration rate of at least about 300 ml per 10 minutes.

3. The lubricating oil composition of claim 1 wherein said fatty acid is a C₁₂-C₂₂ fatty acid.

4. The lubricating oil composition of claim 1 wherein said fatty acid is oleic acid or isostearic acid.

5. The lubricating oil composition of claim 1 wherein water is removed to provide a microemulsion product having less than about 1% by weight water of the total product.

6. The lubricating oil composition of claim 1 wherein said alkaline earth metal is selected from the group consisting of calcium, barium, magnesium and strontium.

7. The lubricating oil composition of claim 1 wherein said alkaline earth metal is calcium.

8. The lubricating oil composition of claim 1 wherein the overbased salt is calcium oleate/carbonate.
9. The lubricating oil composition of claim 1 wherein the overbased salt which is essentially free of a phenol or phenolic derivative.
10. The lubricating oil composition of claim 1 wherein said aliphatic alcohol has 8 to 14 carbon atoms.
11. The lubricating oil composition of claim 10 wherein the alcohol is isodecanol.
12. The lubricating oil composition of claim 11 wherein the dispersion further contains a glycol or a glycol ether.
13. The lubricating oil composition of claim 12 wherein the glycol or glycol ether is selected from the group consisting of diethylene glycol monobutyl ether, triethylene glycol, dipropylene glycol, diethylene glycol monomethyl ether, ethylene glycol monobutyl ether, and mixtures
5 thereof.

14. The lubricating oil composition of claim 1 wherein said reaction product is formed by reacting on the basis of the final reaction mixture an amount of an alkaline earth metal base selected from the group consisting of about 15-30% calcium hydroxide, about 12-24%
5 magnesium hydroxide, about 25-50% strontium hydroxide, and about 35-50% barium hydroxide, and mixtures thereof.

15. The lubricating oil composition of claim 14 wherein the alkaline earth metal base is calcium hydroxide and the fatty acid is oleic acid.

16. The lubricating oil composition of claim 15 wherein the haze free liquid calcium oleate is a microemulsion having amorphous calcium carbonate within the micelles of the microemulsion.

17. The lubricating oil composition of claim 1 wherein after the addition of the dispersion and carbonation with carbon dioxide the mixture contains

about 15-30% calcium oleate,

5 about 9-35% calcium carbonate,

about 30-35% hydrocarbon oil,

about 15-18% isodecanol, and

about 4-6% glycol or glycol ether.

18. The lubricating oil composition of claim 17 wherein the dispersion contains about 40-50% calcium hydroxide, about 25-40% hydrocarbon oil, about 10-25% isodecanol and about 0-10% glycol or glycol ether.

19. The lubricating oil composition of claim 1 wherein the additive is in an amount to provide about 0.5 to about 15% by weight of the overbased metal carbonate based on the total weight of the oil composition.

20. The lubricating oil composition of claim 1 wherein the additive is in an amount to provide about 0.5 to about 7% by weight of the overbased metal carbonate based on the total weight of the oil composition
21. The lubricating oil composition of claim 1 wherein the additive is in an effective amount to protect metal during its lubrication with said composition by neutralization of acid moieties.
22. The lubricating oil composition of claim 1 wherein the additive is in an effective amount to protect metal during its lubrication with said composition by improving detergency.
23. The lubricating oil composition of claim 1 wherein the additive is in an effective amount to protect metal during its lubrication with said composition by improving anti-wear properties.

24. A lubricating oil composition comprising a lubricating oil and, as a metal protectant, an additive of a powdered overbased amorphous alkaline earth metal carbonate of a fatty acid consisting essentially of isolated solid agglomerated micelles of a complexed salt of

5 an amorphous alkaline earth metal carbonate complexed with an amorphous alkaline earth metal carboxylate of a fatty acid.

25. The lubricating oil composition of claim 24 wherein said fatty acid is a C₁₂-C₂₂ fatty acid.

26. The lubricating oil composition of claim 24 wherein said fatty acid is oleic acid or isostearic acid.

27. The lubricating oil composition of claim 24 wherein water is removed to provide a microemulsion product having less than about 1% by weight water of the total product.

28. The lubricating oil composition of claim 24 wherein said alkaline earth metal is selected from the group consisting of calcium, barium, magnesium and strontium.

29. The lubricating oil composition of claim 24 wherein said alkaline earth metal is calcium.

30. The lubricating oil composition of claim 24 wherein the overbased salt is calcium oleate/carbonate.

31. The lubricating oil composition of claim 24 wherein the additive is in an amount to provide about 0.5 to about 15% by weight of the overbased metal carbonate based on the total weight of the oil composition

32. The lubricating oil composition of claim 24 wherein the additive is in an amount to provide about 0.5 to about 7% by weight of the overbased metal carbonate based on the total weight of the oil composition

33. The lubricating oil composition of claim 24 wherein the additive is in an effective amount to protect metal during its lubrication with said composition by neutralization of acid moieties.

34. The lubricating oil composition of claim 24 wherein the additive is in an effective amount to protect metal during its lubrication with said composition by improving detergency.

35. The lubricating oil composition of claim 24 wherein the additive is in an effective amount to protect metal during its lubrication with said composition by improving anti-wear properties.